CLAIMS

1.   A method of controlling frequency use in a virtual single cell wireless communication network having a plurality of radio heads, comprising:

authorizing all of said radio heads to selectively use all frequencies in a spectrum;

communicating between one radio head and a mobile terminal using one of said frequencies;

determining which of said radio heads will unacceptably interfere with each radio head;

denying use of a selected frequency by one radio head whenever said selected frequency is being used by one of said radio heads which were determined to unacceptably interfere with said one radio head; and

determining whether said communication with said mobile terminal should be handed off to another radio head, wherein said handoff is

a soft handoff if said other radio head is not denied use of said one frequency, or

a hard handoff if said other radio head is denied use of said one frequency.

2.	The method of claim 1, wherein said other radio head is not denied use of said one frequency based on use of said one frequency by said one radio head which terminates as a result of handing off said mobile terminal.

3.	The method of claim 1, further comprising determining which of said radio heads have unacceptable interference with said mobile terminal, and denying use of said one frequency by said other radio head if still another radio head using said one frequency is determined to have unacceptable interference with said mobile terminal.

4.	The method of claim 3, wherein said determining which of said radio heads will have unacceptable interference with said mobile terminal comprises continuously measuring said power of said mobile terminal signal at said other radio heads.

5.	The method of claim 1, wherein determining which of said radio heads will unacceptably interfere with each radio head comprises determining attenuation between radio heads based on said geography of said network and layout of said radio heads.

6.	The method of claim 1, wherein said determining which of said radio heads will unacceptably interfere with each radio head comprises measuring attenuation between said radio heads and determining whether signals with each radio head will unacceptably interfere with other radio heads when subjected to said determined attenuation between said radio heads.

7. The method of claim 6, wherein said measuring attenuation between said radio heads are based on periodic measurements of signals between said radio heads.

8. A method of handing off communication in a virtual single cell wireless communication network having a plurality of radio heads each having a coverage area and adapted to communicate with mobile terminals in their coverage area, comprising:

authorizing all of said radio heads to selectively use all frequencies in a spectrum;

determining which of said radio heads will unacceptably interfere with each radio head; and

handing off a mobile terminal communicating on a first frequency with one radio head when said mobile terminal moves to said coverage area of another radio head by performing a soft handoff if none of said radio heads determined to unacceptably interfere with said other radio head are using said first frequency and performing a hard handoff if any one of said radio heads determined to have unacceptable interference with said other radio head is using said first frequency.

9.　　The method of claim 8, further comprising denying use of a selected frequency by one radio head whenever said selected frequency is being used by one of said radio heads which were determined to unacceptably interfere with said one radio head.

10.　　The method of claim 8, further comprising determining which of said radio heads have unacceptable interference with said mobile terminal, and performing a hard hand off if any one of said radio heads determined to have unacceptable interference with said other radio head or said mobile terminal is using said first frequency.

11.　　The method of claim 10, wherein said determining which of said radio heads will have unacceptable interference with said mobile terminal comprises continuously measuring said power of said mobile terminal signal at said other radio heads and comparing said measured power to a selected acceptable level.

12. A virtual single cell wireless communication network for communicating with mobile terminals, comprising:

a plurality of spaced radio heads each authorized to use all frequencies in a spectrum;

a memory storing, for each of said radio heads, an identification of which of said other radio heads unacceptably interfere with said each radio head;

a controller:

controlling said frequencies used by said plurality of radio heads whereby a frequency being used by one radio head is denied use to radio heads unacceptably interfering with said one radio head, and

controlling handoff of a mobile terminal communicating with a first radio head on a first frequency to change to communicate with a second radio head:

by performing a soft handoff if none of said radio heads stored in said memory as unacceptably interfering with said second radio head are using said first frequency, and

by performing a hard handoff if any one of said radio heads stored in said memory as unacceptably interfering with said second radio head is using said first frequency.

13. The network of claim 12, wherein said memory further stores periodic samples indicating signal attenuation between said radio heads, and further comprising a processor using said samples from said memory to determine which radio heads unacceptably interfere with other radio heads.

14. A virtual single cell wireless communication network, comprising:

a plurality of radio heads each authorized to use every frequency in a spectrum for communicating with a mobile terminal;

a processor identifying unacceptable interference between said radio heads and between said radio heads and said mobile terminal;

a memory storing information on interference between said radio heads and information on interference measured between said radio heads and said mobile terminal; and

a controller

controlling the frequencies used by each radio head,

denying selected radio heads use of a frequency being used by any radio head and/or mobile terminal identified as having unacceptable interference with said selected radio heads, and

16   controlling handoff of said mobile terminal from a first radio head

at a first frequency to a second radio head, said controller

18   performing a soft handoff if said radio heads identified as

having unacceptable interference with said second

20   radio head or said mobile terminal are not using

said first frequency, and

22   performing a hard handoff if any of said radio heads

identified as having unacceptable interference with

24   said second radio head or said mobile terminal are

using said first frequency.